

Remarks

A. Introduction

Claims 1-2, 4-5, 7-11, and 14-17 are pending in the application, with claims 9-11 having been withdrawn as directed to a non-elected invention. The Examiner previously finally rejected claims 1, 2, 4-5, and 14 as anticipated by U.S. Patent No. 4,743,361 to Schram and claims 6-8 as obvious in view of combined disclosures of the Schram patent and U.S. Patent No. 6,216,538 to Yasuda, et al. The Examiner additionally objected to claim 4 as depending from cancelled claim 3; in response thereto, Applicants have amended claim 4 to depend from claim 1.

B. The Rejections

Described in the application is apparatus for moving particles between fluids. Opposite first and second walls may define a conduit of the apparatus. They additionally may form part or all of “means capable of generating a *stationary standing* sound wave having a pressure node disposed within the conduit,” with the first wall configured to generate and transmit a sound wave and the second wall configured to reflect it. *See* Application at p. 4, l. 24 through p. 5, l. 4; original claim 6. The application refers to “standing waves” in their standard sense--as *stationary* waves that oscillate *in place*. *See, e.g.,* The American Heritage Science Dictionary (2002) (available at <http://www.dictionary.com>) (defining “standing wave” as “a wave that oscillates in place” and noting it is also called “stationary wave”).

According to the Examiner, the device of the Schram patent also generates a “standing sound wave.” *See* Office Action at p. 3. Clear, though, is that the sound waves of the Schram patent--whatever they are called--are *not stationary*.

Instead, the waves are *intentionally* designed to *drift*. See Schram, col. 10, ll. 66-68 (“to produce a series of momentary frequency differences that result in *drifting* of the standing wave”); col. 11, ll. 31-32 (“the standing wave pattern *progressed* upward at a velocity of 50 mm per minute”); col. 13, ll. 57-58 (same); col. 18, ll. 35-36 (“[a]s in preceding examples, the standing wave was caused to *drift*”); col. 19, ll. 3-4 (“*drifting* standing wave”). Accordingly, Applicants have clarified claim 1 to confirm their reference to a *stationary* standing wave, wholly unlike the *drifting* waves of the Schram patent.

Nor is this distinction without consequence. The Schram patent teaches using a complex, multi-transducer system so as to produce the drifting waves, which effectively “push” particles toward the second fluid. Applicants’ simpler system does not require use of multiple transducers, instead producing a (stationary) standing wave such that a pressure node is provided in the particle-free (second) fluid. Thus, the apparatus causes particles in the first fluid to be attracted toward the node in the second fluid, effectively “pulling”--rather than “pushing”--particles toward the second fluid.

Finally, Applicants do not concede any basis exists for combining disclosures of the Schram and Yasuda patents. Even were they properly combined, however, they would *not* teach or suggest generation of (stationary) standing waves as Applicants have claimed. Indeed, like the Schram patent, the Yasuda patent too uses multiple oscillators to produce *drifting* standing waves to move particles. See,

e.g., Yasuda, Fig. 19A; col. 3, ll. 28-33. For at least these reasons, therefore, Applicants believe all pending claims are allowable.*

Conclusion

Applicants request that the Examiner allow claims 1-2, 4-5, 7-8, and 14-17 and that a patent containing these claims issue in due course.

Respectfully submitted,

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*Further distinguishing their invention from the multi-transducer systems of the Schram and Yasuda patents, Applicants have added, *e.g.*, claim 15, detailing their apparatus as having *only one transducer* as part of the stationary standing wave generating means. *See* Application at p. 8, l. 24 through p. 9, l. 3; Figs. 1 and 3.